

Test Apparatus

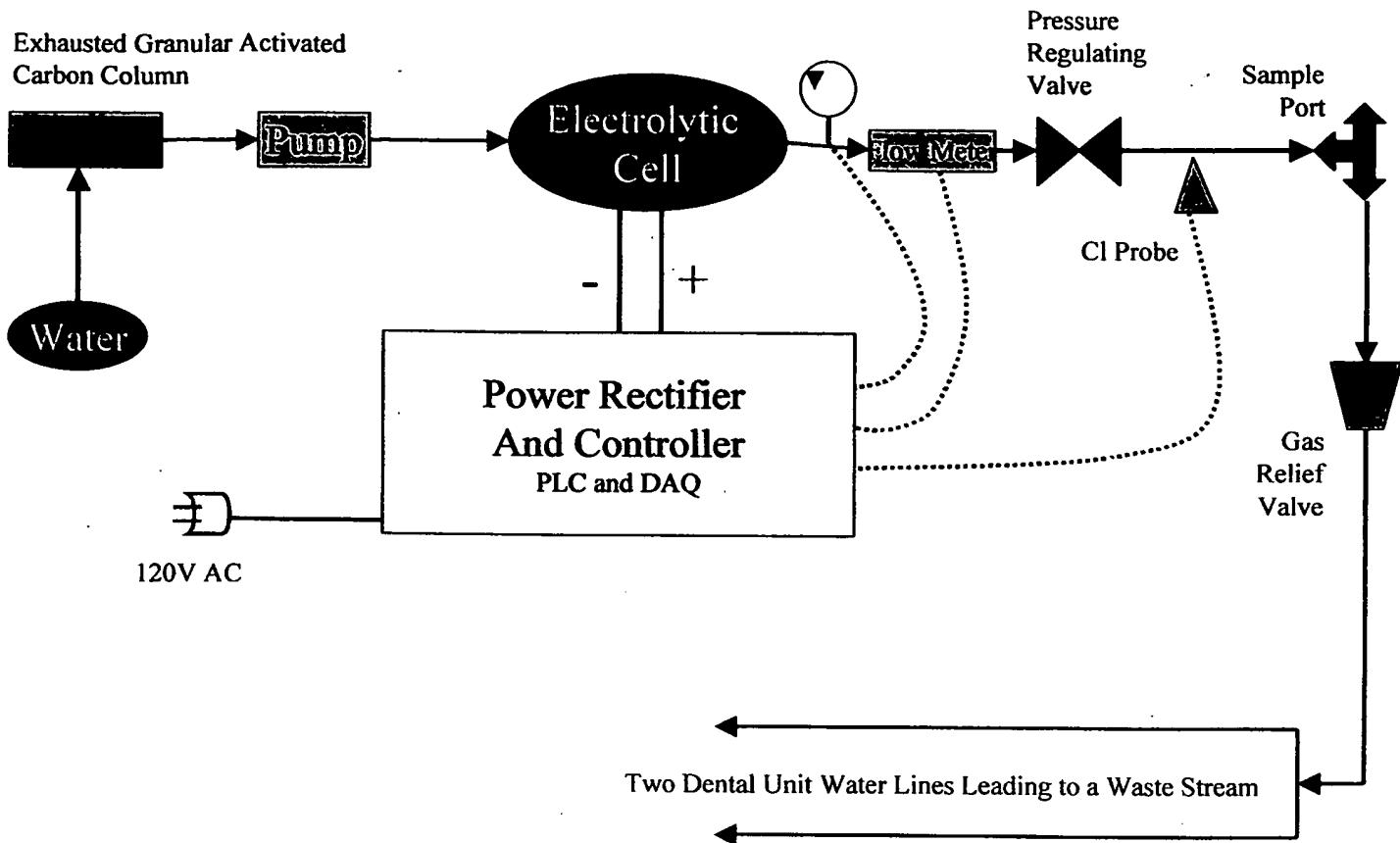


Figure 1

Testing occurs for two nominally identical dental unit water lines with nominally identical biofilms. One of these lines is an experimental line; the other is the control. The experimental line is connected to the test apparatus and the control line is connected to the municipal water supply.

Before beginning the experiment, part of the control line is cut for analysis. Biofilm is scraped from a section of the inner wall of the dental tubing and measured as biomass per unit area.

The control line is then connected to the municipal water supply and the experimental line is connected to the test apparatus. An exhausted granular activated carbon column (as described above) is placed upstream from both the control line and the experimental line.

Power is then applied to the high-voltage (~24 V, 1.8 A) electrolytic cell, and an operating voltage and current is established, to test the electrolytic system's ability to remove the biofilm from the experimental dental water unit line. Beakers collect all the water that emerges from this line, and the beakers are changed at 10-minute intervals. From each beaker water sample, there is analysis of the microbial content by standard plate counts and by a live / dead staining microscopy technique.

The test continues to collect and measure water samples from the experimental dental water unit line until the microbial content falls below the drinking water standard of 500 CFU/ml. The microbial content reaches this level within a few hours, and perhaps less than one hour. Once that level of microbial content occurs, the flow of water to the test apparatus is turned off, as is the power to the electrolytic system, and the flow of municipal water through the control water line.